

STAR 2006: NOAA Ship *David Starr Jordan* Weekly Science Report

Robert L. Pitman, Cruise Leader
10 August 2006

Science Summary: 03 - 09 August 2006

We did a couple of major zigzags out from the southern coast of Baja and back again this last week. Mostly blue, empty water although we did break into the spotted dolphins (our main target species). Few birds, few mammals, a couple of turtles - yawn. As we move further south into warmer waters sea turtles become increasingly prevalent. We catch them from the small boat and haul them on board the ship to process them. With any luck, we should catch 200-300 this trip and each will be measured, weighed, tagged, and released. The loggerheads we catch are all 'Made in Japan;' after hatching, many of them swim/drift across the entire North Pacific, and we manage to intercept a few in the waters off Baja California by which time they have grown to about the size of a laptop computer. They feed in the rich waters of the California Current until they get to be the size of carry-on luggage that won't quite fit, and then they head back to Japan where they will grow to the size of a riding lawnmower (consumer metrics). There they will finish out the rest of their lives and start the cycle all over again.

We still have our 12" crosshatch triggerfish (*Xanthichthys mento*) in the outside aquarium. According to the book, males have red tails and females have yellow tails. Ours has a disturbingly orange tail which presented a bit of a naming dilemma (Rule: if it is bigger than 3" and lasts more than a week, we can name it). Although there are those who would argue that this is just the kind of gender ambiguity that is ushering in the downfall of Western Society, we as biologists chose to set our insecurities aside, decreed it a he, and dubbed him Rufus. Another shipboard crisis narrowly averted.

The starboard winch has been declared legally dead (for the time being), but Kim and Chico have devised an alternate plan that allows us to deploy our nets off the port side. Meanwhile, the part that we think will revive the dearly departed is being shipped to Mazatlan, Mexico, our first inport. For the time being, this is a work in progress and plankton are still safe. We have both engines on line again and we are steaming along at 9-10 kt. But our couple days of slogging along on one engine has put us quite a ways behind schedule, so we have started cutting corners on our tracklines, dropping morning CTDs, and passing up the 90 min we normally spend on sperm whale school size estimates. Getting to port late is not an option. Food is great, morale is high, and life is good. Ship happens.

Our biological event of the week came at the 11th hr yesterday as we were out in the small boat, attempting to photograph and biopsy a trio of blue whales off the southern tip of Baja. That tiny biopsy sample can tell us gender, provide information on stock identity, assay pollutant loads, identify prey preferences and feeding areas, and tell us whether or not a female is pregnant, among other things; a lot of information is packed into a plug the size of a pencil eraser. We sampled two whales and as we maneuvered for the third, one of the whales started following our launch and was clearly interested in us. The curious animal started swimming around and under

our launch. As this animal glided silently past us, I wondered if maybe after 40 yrs of protection blue whales could finally start to be curious about human beings once again.

Sightings and Effort Summary for Marine Mammals

Date	Start/ Stop Time	Position	Total nm	Average Beaufort
080306	0619	N23:16.65 W116:24.66	72.5	3.9
	1909	N23:12.82 W115:40.54		
080406	0623	N23:46.73 W114:27.96	83.9	3.0
	1905	N24:25.90 W112:52.47		
080506	0602	N23:53.84 W112:54.21	81.6	3.7
	1911	N22:22.23 W113:58.73		
080606	0615	N21:10.40 W114:42.56	104.0	4.4
	1907	N20:41.66 W114:42.72		
080706	0614	N21:31.07 W113:28.74	106.0	3.1
	1856	N22:41.68 W111:48.99		
080806	0610	N21:15.52 W111:49.90	65.4	1.8
	1850	N19:37.04 W111:56.14		
080906	0600	N20:36.58 W110:42.79	63.8	3.3
	1848	N21:38.13 W109:24.50		

Code	Species	Number of Sightings
002	<i>Stenella attenuata</i> (offshore)	9
010	<i>Stenella longirostris orientalis</i>	2
013	<i>Stenella coeruleoalba</i>	11
015	<i>Steno bredanensis</i>	4
017	<i>Delphinus delphis</i>	8
018	<i>Tursiops truncatus</i>	7
021	<i>Grampus griseus</i>	6
033	<i>Pseudorca crassidens</i>	1
036	<i>Globicephala macrorhynchus</i>	1
049	Ziphiid whale	1
070	<i>Balaenoptera</i> sp.	1
072	<i>Balaenoptera edeni</i>	1
075	<i>Balaenoptera musculus</i>	5
077	unid. dolphin	11
098	unid. whale	1
099	<i>Balaenoptera borealis/edeni</i>	2
Total		71

Photography (Cornelia Oedekoven and Laura Morse)

The dolphins have kept us a little busier this week than the previous. The introduction of ‘sweeps’ into dolphin photography for stock-id on our cruise this year definitely represents a new challenge for us. In addition to trying to get good full frame dolphin images we now attempt to make sure that within a sweep each dolphin is a different individual. Nevertheless, we like challenges and are working out the best way to do this. We will keep you posted.

Species	Common Name	Weekly photographs		Total
		Individuals	Schools	
<i>Stenella attenuata (offshore)</i>	Spotted dolphin	3	2	5
<i>Stenella longirostris</i>	Spinner dophin	0	0	0
<i>S. l. orientalis/attenuata</i>	Mixed school	1	0	1
<i>Stenella coeruleoalba</i>	Striped dolphin	2	0	2
<i>Steno bredanensis</i>	Rough-toothed dolphin	1	0	1
<i>Delphinus delphis</i>	Common dolphin	2	3	5
<i>Tursiops truncatus</i>	Bottlenose dolphin	4	0	4
<i>Grampus griseus</i>	Risso’s dolphin	2	0	2
<i>Globicephala macrorhynchus</i>	Pilot whale	1	0	1
<i>Physeter macrocephalus</i>	Sperm whale	0	0	0
Ziphiid whale	Beaked whale	1	0	1
<i>Berardius bairdii</i>	Baird’s beaked whale	0	0	0
<i>Balaenoptera musculus</i>	Blue whale	3	6	9
<i>Balaenoptera borealis/edeni</i>	Bryde’s/Sei whale	3	11	14
Total		23	22	45

Biopsy (Juan Carlos Salinas and Ernesto Vázquez)

Species	Common Name	Weekly		Total	
		Samples	Takes	Samples	Takes
<i>Balaenoptera edeni</i>	Bryde’s whale	1	1	1	1
<i>B. musculus</i>	Blue whale	6	12	8	16
<i>Globicephala</i>	Short-finned pilot whale	3	6	8	19
<i>Delphinus delphis</i>	Short-beaked common	3	12	15	32
<i>Stenella attenuata</i>	Pantropical Spotted	8	15	8	15
<i>S. coeruleoalba</i>	Striped dolphin	1	3	1	3
<i>S. longirostris orientalis</i>	Eastern spinner dolphin	3	12	3	12
<i>Tursiops truncatus</i>	Bottlenose dolphin	3	5	3	5
Total		28	66	47	103

Bird Buzz (Rich Pagen and Chris Cutler)

As we headed south into offshore waters west of Baja California, we recorded 16 species of seabirds as the eastern tropical Pacific avifauna showed up one by one, leaving us with nearly a full compliment; only Juan Fernandez Petrel failed to show. Brown Boobies and two white-rumped storm-petrel species (Leach's and Galapagos) were recorded every day this last week; Cook's Petrels were seen daily through Tuesday but dropped out on the last day of the week – getting too warm for them. Also of interest this week was a White Tern, far north of its usual range.

This year we are recording marine debris concurrently with our seabird observations. Thus far, the tally has been surprisingly low. We did have quite the jetsam gem this week, however: a chest freezer floated by (door removed, probably for safety reasons); judging by the amount of guano on it, it was clear however that at least the boobies utilize large appliances in the marine environment.

Turtle Operations (Lindsey Peavey, *et al.*)

Species	Common name	Number sampled	
		Weekly	Total
<i>Caretta caretta</i>	Loggerhead	5	7
<i>Lepidochelys olivacea</i>	Olive ridley	3	3
Total		8	10

Squid Ops (Iliana Ruiz-Cooley)

One hour after sunset, the squid work begins. We have observed squids at the sea surface every night; most of them are small to medium sized. During our one hour of jigging for squids, we have caught three species to date, but not as many individuals as hoped. Two days ago, we had our first encounter with the purpleback squid, *Sthenoteuthis oualaniensis* whose oval photophoric patch on the dorsal part of the mantle is very evident even though they move very fast. The full moon has been a major obstacle to our squid catching efforts but that will change in the next few days and, we hope, so will our luck.

Fish Sampled for Diet and Isotope Analysis

Species	Samples	
	Weekly	Total
Yellowfin tuna	4	8
Skipjack	0	5
Wahoo	1	3
Mahi Mahi	0	5
Total	16	21

Oceanographic Operations (Candy Hall)

This week's trackline steered us over the famously narrow continental shelf off the Baja Peninsula. Surface water temperatures oscillated between chilly 23 °C (73.4 °F) and a balmy 27.5° C (81.5 °F), with some impressive temperature inversions at depth. This is the stuff that normally warms the cockles of an oceanographer's heart.

Date	CTD	XBT	Bongo tow	Manta tow
03 Aug	2	3	0	0
04 Aug	2	3	0	0
05 Aug	2	3	0	0
06 Aug	2	3	0	0
07 Aug	2	3	0	0
08 Aug	2	3	0	0
09 Aug	1	3	0	0
Total	13	21	0	0